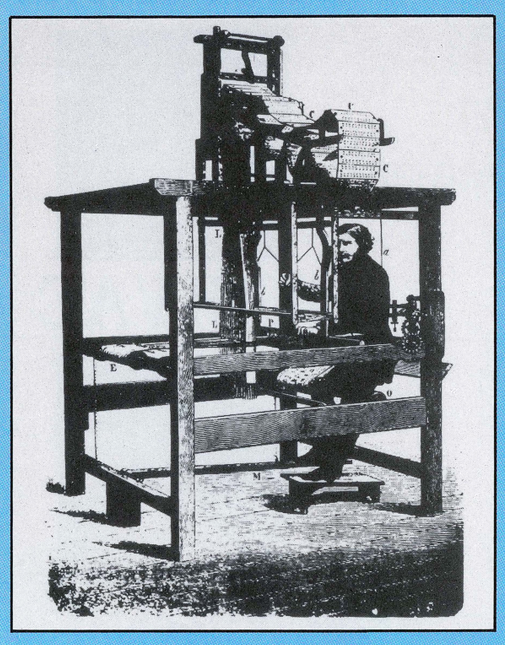
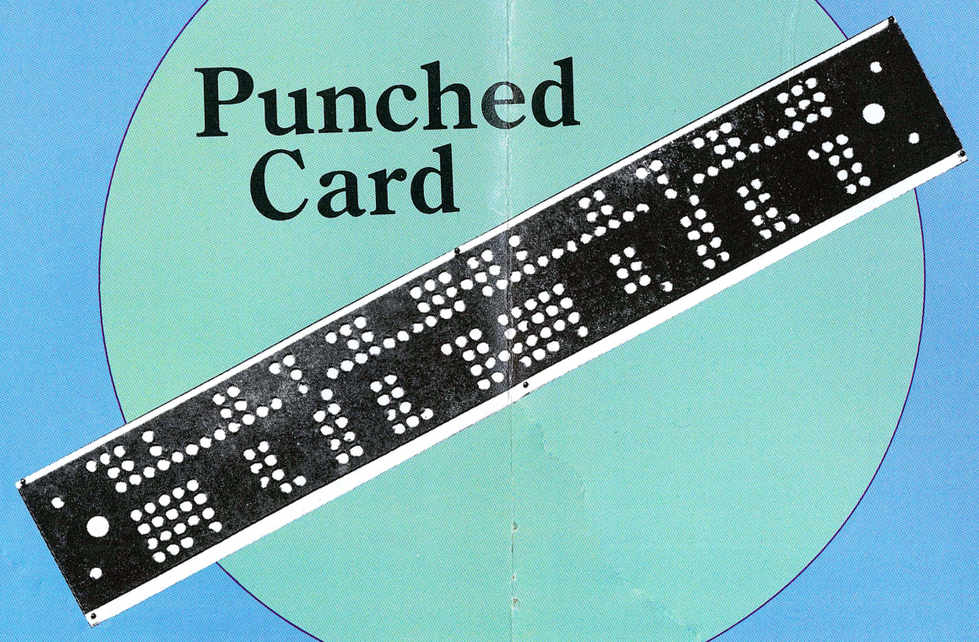
EARLY HISTORY OF SOFTWARE DEVICES

Computers cannot do anything by themselves. They have to be told what to do and how to do it. They have to be given very special instructions. These instructions are called *software*. Software has been stored on many different devices throughout history — from punched cards to laser video discs. Below are some of the earliest devices that were used to store software.



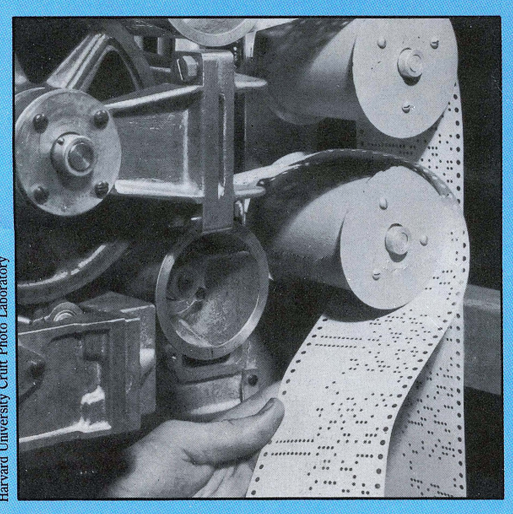
Jacquard's Loom

1800s Punched Card



Joseph-Marie Jacquard used cards with holes punched in them to give weaving instructions to his loom. The cards moved through the loom on a belt. How did the cards tell the loom which threads to weave? Each thread on the loom corresponded to a particular spot on a card. If a hole was punched in the card at that spot, as the card moved by, the thread would pass through the hole and become part of a cloth design. This was in 1801.

Almost 100 years later, in 1889, Herman Hollerith used a similar punched card to run the first electric tabulating machine. The 1890 census was counted, or tabulated, by using his machine. The holes in these cards stood for population characteristics. For example, a hole in one spot of a card meant a person was single; a hole in another spot meant he or she was married, and so on. The cards were pushed over brushes. Each time a brush found a hole, it gave off an electrical signal that moved a counting gear for that characteristic ahead by one.



Harvard University Cruft Photo Laboratory

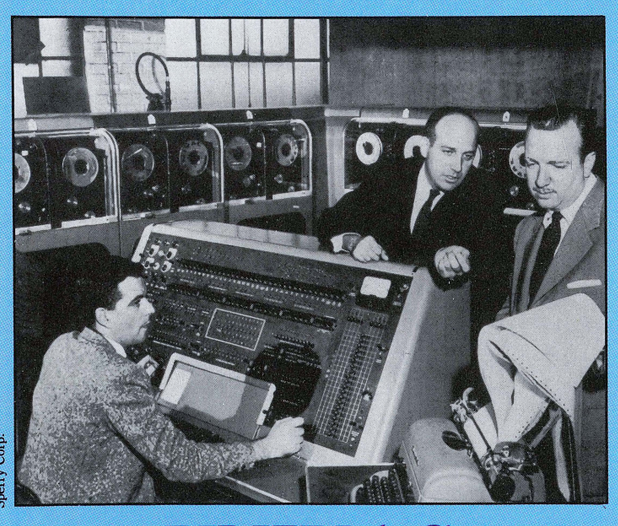
Mark I

1900s Paper Tape

Punched paper tape is similar to a long string of punched cards. Rolls of paper tape can store more information than a stack of punched cards, and they are easier to handle.

The Mark I computer, built in 1944, read instructions from punched paper tape. Whenever computer operators wanted the computer to do another job, they would change the paper tape.

Today, some telephone company computers and some computers that count votes in large elections still rely on punched cards and paper tapes.

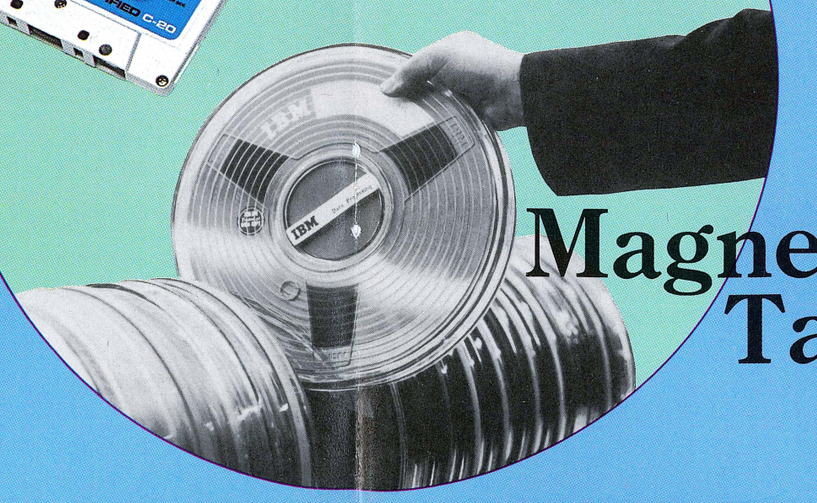


Sperry Corp.

UNIVAC

1950s Cassette Tape

Magnetic Tape



A magnetic tape is a plastic strip that has a special coating on one side. This coating contains small magnetic spots throughout. Each time a spot appears it is read by the computer, just as holes in punched cards and paper tape are read. The magnetic tapes used on large computers are at least ½-inch wide and as long as 2,400 feet! Magnetic tapes are stored on large reels. A single tape is able to hold as much information as nearly 500 boxes of punched cards.

UNIVAC, the first computer to be sold to businesses, read information from magnetic tape. Some computers still use magnetic tape to store large amounts of information. Some microcomputers use smaller magnetic tapes to store their information. These tapes look just like the cassettes used to record music, and are read by a regular cassette player that is hooked up to a computer's CPU (brain).

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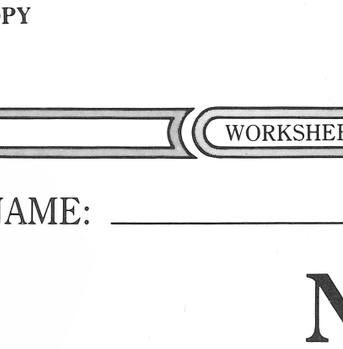
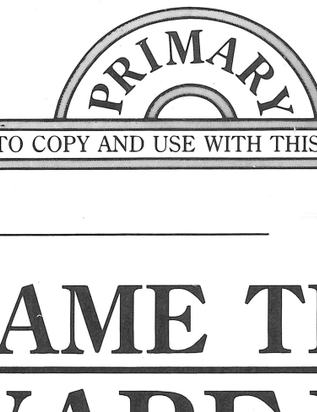
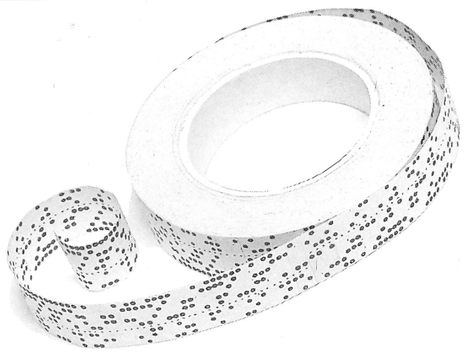
NAME THE SOFTWARE DEVICE

DIRECTIONS: Look at the software devices below.
Write the name of each one under its picture.
Use the front of the poster for help.







_____ _____ _____

_____ _____ _____

_____ _____ _____

WORD BOX
punched card
magnetic tape
paper tape

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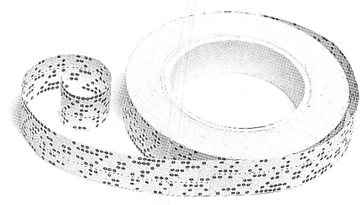
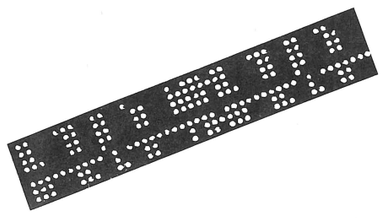
SOFTWARE MACHINES

DIRECTIONS: Look at the pictures below.
Draw a line from the software device to the machine that runs it.
Use the front of the poster for help.

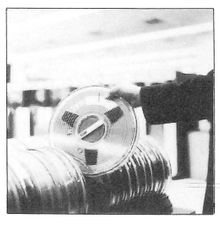
SOFTWARE:



paper tape



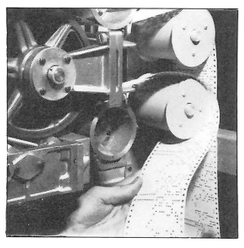
punched card



magnetic tape

MACHINE:

UNIVAC



Mark I

loom

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NAME: _____

PUNCHED CARD PUZZLE

DIRECTIONS: Punched cards are cards with holes in them. They were invented in the early 1800s. Like disks and cassettes, which were invented much later, they store data for computers to use.

To see how punched cards work, look at the drawing of a punched card on page two of this puzzle. Each hole on the card stands for a letter of the alphabet. The position of the hole tells which letter it is. For example, a hole on the far left side of the card stands for an "A." A hole on the far right side stands for a "Z." The holes on this card spell out the name of the person who invented punched cards.

To find out who that person is, cut out the card reader (below) and place it over the top line of the punched card. Line up the solid lines on the sides of the card reader with those on the sides of the punched card. Slide the card reader down the punched card until a hole appears in the center part of the card reader. The first hole should be directly under the "J." Write a "J" in the first blank below. Slide the card reader down to the next hole. What letter does that hole stand for? Put that letter in the second blank. Continue in this manner until you have solved the puzzle.

The inventor of punched cards is:

_____ _____ _____ _____ _____ _____ - _____ _____ _____ _____ _____

_____ _____ _____ _____ _____ _____ _____ _____

Punched Card Reader

CUT OUT.

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

CUT OUT THIS SECTION.

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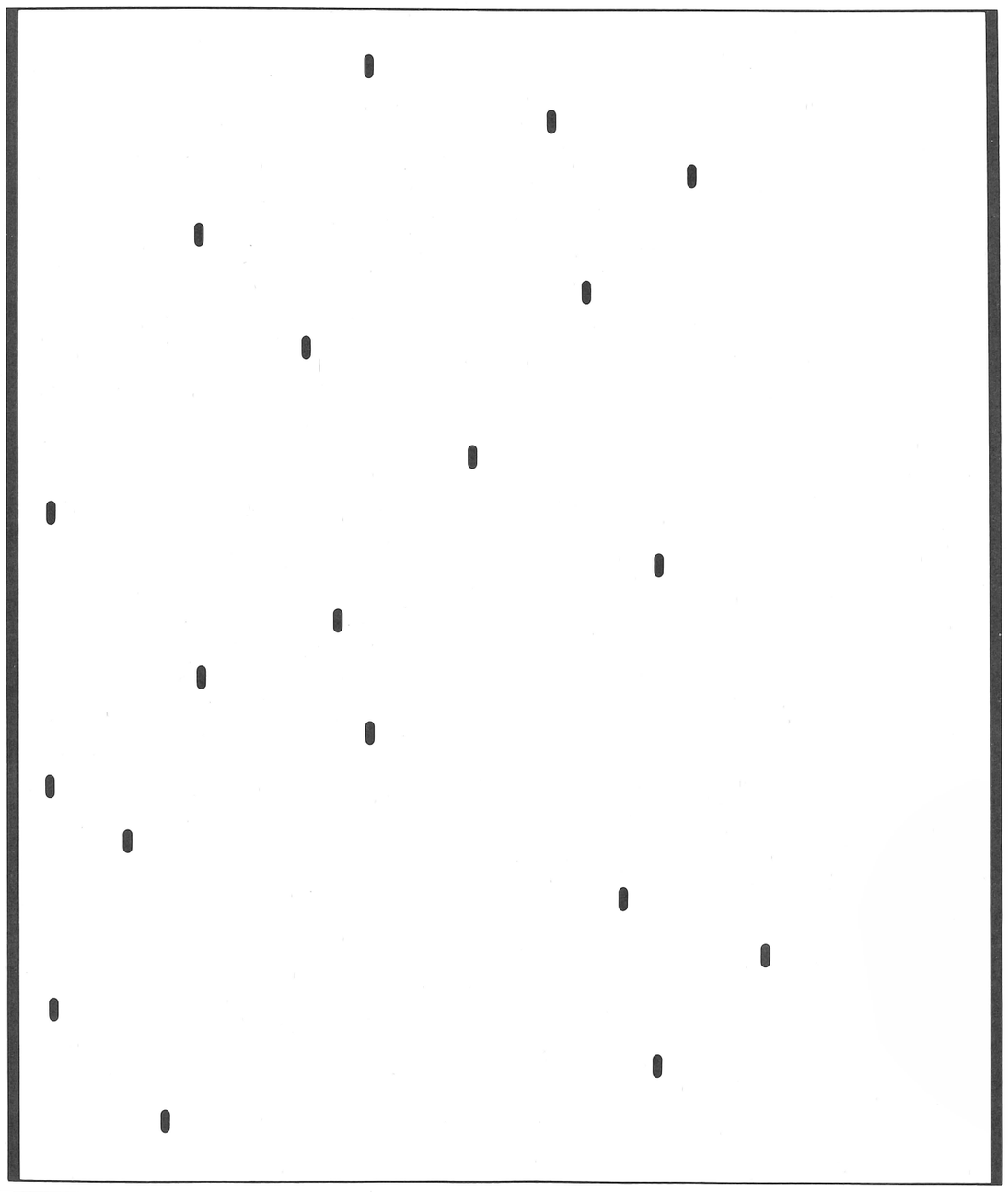
PUNCHED CARD PUZZLE

Punched Card

See directions on previous page.



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